

Answer Key

Powerful Pulleys

1. Yes.
2. Answers will vary.
3. The difference between the two numbers is due to friction. Friction affects the amount of pennies needed to lift the mass and pulley. To overcome friction, more pennies must be added.

Load-Lifting Lever

Data Chart

1. The board represented the lever, the block was the fulcrum, the six books were the load or resistance,

Position of Load	Actual
3R	6
2R	4
1R	2

Position of Force/Effort	Actual
3L	2
2L	3
1L	6

- the books used to do the lifting were the force or effort needed to lift the load.
2. As you moved the triangular block (fulcrum) toward the end of the board (load), it took fewer books (effort) to lift the six books.
 3. It took more books to lift the load as you moved toward the fulcrum. If your force is 5 times further from the fulcrum than the load, then you multiply the force 5 times. The trade-off is that the distance you have to push down will be 5 times greater than the load distance (how far it moves up).
 4. Graphs will vary.

Creative Gears

1. Answers will vary.
2. Answers will vary.
3. Some variables that can be changed to create different patterns are the size of the large hole, using different holes in the gear wheel, and using different sizes of gear wheels.

